

REMARKS/ARGUMENTS

This application has been carefully reviewed in light of the Office Action dated December 27, 2007. By way of this amendment, new claims 19 - 20 have been added, claims 3-18 have been amended, and claims 1 and 2 have been canceled. A Declaration under 37 C.F.R. 1.132 by Bradley L. Hoover is filed along with this paper. It is believed that this application is now in condition for allowance. Such action at an early date is respectfully requested.

The present invention is directed to a valve assembly for a precision pump. Pumps of this type include check valves to direct fluid into and out of the pump during each cycle. Conventional check valves of this type include valve elements positioned in a valve compartment. The valve elements are configured to move rapidly from a closed position to a fully open position. When the valve element is in the closed position, it is in contact with a valve seat. In the fully open position, the valve element is spaced-apart from the valve seat and is not in contact with the compartment.

According to one embodiment, the present invention provides valve assembly having a compartment defined therein that is configured to limit the travel of the valve element. In this regard, valve elements of the present invention can be configured to provide a tight seal when in the closed position while not being subject to flutter that results from overtravel.

In response to the Examiner's rejections, claims 1 and 2 have been canceled and new claims 19 and 20 have been added. New claim 19 indicates the valve element has a

predetermined thickness and is adapted to flexibly travel between a closed position against the second valve seat that prevents fluid flow past the valve seat and an open position *against the second valve compartment* that permits fluid flow past the valve seat.

It is respectfully submitted that none of the cited references teaches, suggests, or shows a valve compartment and element as presently set forth in the claims, or the advantages thereof.

Claims 9 and 12 - 18 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims have been amended accordingly.

Claims 1 - 3 stand rejected under 35 U.S.C. 102 (b) as being anticipated by the applicant's admitted prior art in figures 5 and 6.

Claims 10-12 stand rejected under 35U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in figures 5 and 6.

Claims 4-9 and 13-18 stand rejected under 35U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in figures 5 and 6 in view of United States Patent No. 6,089,272 and United States Patent No. 5,217,797 to Knox et al.

Referring to figure 6, the applicant respectfully submits that it was intended to show a valve element in an overtravelled, fully open position in which the valve element is not in contact with a valve compartment. In such a position, valve elements of the prior art *do not* come into contact with a valve compartment as will be discussed further below. In this regard, a gap is defined between the overtravelled valve element and the valve compartment

of a prior art valve assembly. It was the intention of the applicant to show such a gap in figure 6. In contrast, figures 7 and 8 show a valve element of the present invention in contact with the valve compartment when the valve element is in the open position and the valve element contacts the compartment. In figures 7 and 8, the lines that define the adjacent, contacting, portions of the valve element and the compartment essentially merge into one line through the area of contact. In figure 6, the lines of the adjacent, but non-contacting, portions of the valve element and the compartment do not merge because the valve element and the compartment of the prior do not contact each other. Thus by comparing figures 7 and 8 with figure 6 it is evident that figure 6 does not show a valve element contacting a compartment when the element is in the open position.

The attached declaration by Bradley L. Hoover provides further evidence that valve elements of the prior art in the open position do not contact the compartments of the prior art. In this regard, Mr. Hoover indicates that he would not have designed a check valve for a precision pump where the valve element contacts a valve compartment when the valve element is in the open position. The statements of Mr. Hoover are evidence of the state of the art prior to the present invention and support the applicants description of figure 6.

Referring now to claim 19, figures 5 and 6 do not show a valve element having "a closed position against the valve seat that prevents fluid flow past the first valve seat and an open position *against the first valve compartment* that permits fluid flow past the valve seat."

Referring now to claim 10, figures 5 and 6 do not show a valve assembly "wherein the dimensions of the first valve compartment are selected to limit the stroke length of the first

valve element to less than about 1.6 times the first thickness.”

The applicant respectfully submits that, for the foregoing reasons, claims 10 and 19 are now in condition for allowance. The applicant respectfully submits that because claims 20 and 3-9 depend from claim 19 and claims 11-18 depend from claim 10, they too are in condition for allowance.

The Director is hereby authorized to charge any additional fees or any underpayments which may be required for the above-referenced application to Deposit Account No. 01-0265.

Respectfully submitted,

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